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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,784	03/06/2002	Akihiko Ito	111731	8518

25944 7590 04/05/2004

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EXAMINER

NGUYEN, JIMMY H

ART UNIT	PAPER NUMBER
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2673

8

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/090,784

Applicant(s)

ITO, AKIHIKO

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3.5.6.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This Office Action is made in response to applicant's papers filed on 03/06/2002. Claims 1-33 are currently pending in the application. An action follows below:

#### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the features, "a favorable voltage" and "an unfavorable voltage", both of claims 5, 6, 15, 16, 25 and 26, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

#### ***Claim Objections***

3. Claims 6, 16, 26 are objected to because of the following informalities: line 2, "voltage is" should be changed to -- voltage -- due to a grammatical error. Appropriate correction is required.

4. Claims 10, 11, 20, 21, 30 and 31 are objected to under 37 CFR 1.75(a) because although these claims meet the requirement 112/2d, i.e., the metes and bounds are determinable, however, the following changes should be made:

i. "assume" of claims 10, 20 and 30, line 2, should be changed to -- form--, so as to clarify the claimed invention.

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ii. “each other” of claims 11 and 21, line 2, and claim 31, line 3, should be changed to -- said plurality of scanning electrodes--, so as to make the claimed invention consistent with the disclosure, see fig. 4.

5. It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the claims, to take into consideration these editorial situations and make changes as necessary.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 5, 6, 15, 16, 25 and 26 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding to claims above, the disclosure, when filed, does not contain sufficient information regarding to the claimed feature, “a voltage applied to a crossing portion ... becomes a favorable voltage to display data for the crossing portion  $p$  times ( $p > (n+1)/2$ ) and becomes an unfavorable voltage to the display data  $(n+1-p)$  times”, as recited in claims 5, 15 and 25. The disclosure, specifically page 13, paragraph [0040], through page 15, line 2, only discloses favorable and unfavorable voltages. However, the disclosure does not contain such description and details a favorable voltage to display data for the crossing portion  $p$  times ( $p > (n+1)/2$ ) and becomes an unfavorable voltage to the display data  $(n+1-p)$  times, so as to enable one skilled in

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the pertinent art to make and/or use the claimed invention. Furthermore, the disclosure, specifically page 14, lines 2-5, discloses the definitions of the favorable voltage and the unfavorable voltage, in such a way not to enable one skilled in the pertinent art to understand what the favorable voltage or the unfavorable voltage is, i.e., the voltage "2.V1" represents for **both** a favorable voltage and an unfavorable voltage, or the voltage "0" represents for **both** a favorable voltage and an unfavorable voltage.

8. It is noted Applicant that due to the rejection under 35 USC 112 above, the following art rejections are based as best understood by the examiner.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-3, 11, 21 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (USPN: 5,877,738, cited in IDS filed on 12/29/2003).

It is noted Applicant that as broadly interpreted by Examiner, the feature, "three predetermined voltages", of claim 1, lines 7-8, is not the same as the feature, "the three voltages", of claim 1, line 12; and the feature, "the first or second potential applied to a scanning electrode", of claims 11, 21 and 31, line 9, is not the same as the feature, "the first or second potential applied to the signal electrodes", of claims 11, 21 and 31, lines 10-11. In order to limit the features to be the same, a word, "said", rather than "the", must be used.

As per claims 1-3, 11, 21 and 31, the claimed invention reads on Ito et al. as follows: Ito et al discloses a LCD device and an associate driving method for the LCD device, which comprises a plurality of scanning electrodes (row electrodes X1, X2, ... Xn, see fig. 2) and a plurality of signal electrodes (column electrodes Y1, Y2, ... Ym, fig. 2) arranged to cross the plurality of scanning electrodes (X1, ... Xn), which are divided into groups, each consisting of 3 (n=3) scanning electrodes that are selected simultaneously (see figs. 7A-7C, or figs. 9A-9C). As noting in figs. 7A-7C, or figs. 9A-9, Ito et al further teaches a first potential (VX1) or a second potential (-VX1) that is opposite in polarity to and has the same absolute value as the first potential (VX1) with respect to an average of potentials (i.e., 0V potential), and a first potential (VX1) or a second potential (-VX1) selectively applied to a scanning electrode (X) when a first potential (VY2) or a second potential (-VY2) applied to the signal electrodes (Y). Accordingly, the elements and the steps in the claims are read in the Ito et al reference.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4-10, 14-20 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al, and further in view of Tsuzuki et al. (USPN: 4,465,999), hereinafter Tsuzuki.

As per claims 4-7, 9, 10, 14-17, 19, 20, 24-27, 29 and 30, the claimed invention reads on Ito et al. as follows: Ito et al discloses a LCD device and an associate driving method for the LCD device, which comprises a plurality of scanning electrodes (row electrodes X1, X2, ... Xn,

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see fig. 2) and a plurality of signal electrodes (column electrodes Y1, Y2, ... Ym, fig. 2) arranged to cross the plurality of scanning electrodes (X1, ... Xn), which are divided into groups, each consisting of 3 (n=3) scanning electrodes that are selected simultaneously (see figs. 7A-7C, or figs. 9A-9C). As noting in figs. 7A-7C, or figs. 9A-9, Ito et al further teaches a first potential (VX1) or a second potential (-VX1) that is opposite in polarity to and has the same absolute value as the first potential (VX1) with respect to an average of potentials (i.e., 0V potential), and a first potential (VX1) or a second potential (-VX1) selectively applied to a scanning electrode (X) when a first potential (VY2) or a second potential (-VY2) applied to the signal electrodes (Y). Ito et al does not disclose expressly a maximum voltage amplitude (VX1) given to the scanning electrodes (X) is set equal to a maximum voltage amplitude (VY2) given to the signal electrodes (Y). Accordingly, Ito et al discloses all the claimed limitations except that a maximum voltage amplitude given to the scanning electrodes is set equal to a maximum voltage amplitude given to the signal electrodes.

However, Tsuzuki teaches a related LCD device (col. 2, lines 36-41, see fig. 18), wherein the data signals (column drive signal C0, C12, ..., see fig. 7), which are applied to signal electrodes (column electrodes 55 and 56, col. 11, lines 10-11), should have three potential levels (V0, V1, V2), which are made the same as three potential levels of the selection signals (row drive signals r1-r4, see fig. 7) applied to scanning electrodes (row electrodes 51-54, col. 11, line 10), so as to reduce a number of potential levels required to drive the LCD device (col. 11, lines 38-44). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide three potential levels of the Ito et al data signals the same as three potential levels of the Ito et al selection signals, in view of the teaching in the Tsuzuki

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reference, because this would reduce a number of potential levels required to drive the LCD device, as taught by Tsuzuki (col. 11, lines 38-44).

Regarding to claims 8, 18 and 28, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the pixel is in On-display only if the on-voltage of an effective voltage applied to a liquid crystal must be higher than the saturation voltage of the liquid crystal, and the pixel is in Off-display only if the off-voltage of an effective voltage applied to a liquid crystal must be lower than the threshold voltage of the liquid crystal. Accordingly, a ratio of an on-voltage to an off-voltage of an effective voltage to a liquid crystal inherently becomes greater than a ratio of a saturation voltage to a threshold voltage of the liquid crystal, in order to turn ON or OFF the pixel. Therefore, the combination of Ito et al and Tsuzuki discloses the invention of these claims.

Regarding to claims 12, 22 and 32, as noting in figs. 7A-7C, Ito et al teaches that the selection signals to be applied to the scanning electrodes of the same group are applied at a plurality of time points in one frame period.

Regarding to claims 13, 23 and 33, as noting in figs. 9A-9C, Ito et al teaches that the selection signals to be applied to the scanning electrodes of the same group are applied at once in one frame period.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is (703) 306-5422. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at (703) 305-4938.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

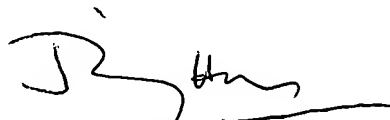
**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-03770377.

JHN  
April 2, 2004



Jimmy H. Nguyen  
Examiner  
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